

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended) A semiconductor testing apparatus for supplying a test input signal to a semiconductor device as a testing target and receiving an output signal from the semiconductor device, comprising:

a test program memory section configured to store a test program including at least a wait time for testing the semiconductor device;

a measuring/deciding section, connected to the test program memory section, for receiving the test program stored in the test program memory section,

for [[and]] supplying the test signal to the semiconductor device in accordance with the test program having the wait time set to a predetermined value, and

for detecting an optimal value of the wait time through a series of processes comprising:

measuring, after elapse of the wait time, the

electrical characteristics of the

semiconductor device on the basis of the

response signal outputted from the

semiconductor device;[[, and]]

making an OK/NG decision on the electrical

characteristics of the semiconductor device

on the basis of the measurement results;[[,

and,]]

if the decision is “NG”, remeasuring the electrical characteristics of the semiconductor device under a newly set wait time; [[and,]]
for each newly set wait time, performing the remeasuring operation on the electrical characteristics of the semiconductor device until the result of [[such]] a decision is “OK”; [[,]]and
initiating the next measuring operation when the result of that decision is “OK”; and
a wait time initializing/changing control section, connected to the measuring/deciding section; [[,]]
for receiving the result of the OK/NG decision from the measuring/deciding section after an initialization of the wait time included in the test program; and
for controlling the measuring/deciding section to,
if the result of the OK/NG decision is “NG”, repeat the setting of the wait time ~~in a manner~~ to sequentially increment the wait time toward an initially determined maximal value until the result of the decision is “OK” and,
if the result of the decision is “OK”, terminate the setting of the wait time.

2. (Currently Amended) The apparatus according to claim 1, further comprising:
 - a first memory section, connected to the measuring/deciding section, for storing the result of the OK/NG decision of the measuring/deciding section as a flag; and
 - a second memory section, connected to the wait time initializing/changing control section, for storing the wait time set by the wait time initializing/changing control section.
3. (Currently Amended) A semiconductor testing apparatus for supplying a test input signal to a semiconductor device as a testing target and receiving an output signal from the semiconductor device, comprising:
 - a test program storing section configured to store a test program including at least a wait time for testing the semiconductor device;
 - a measuring/deciding section, connected to the test program storing section, for receiving the test program stored in the test program storing section;[[,]] and

for supplying the test signal to the semiconductor device in accordance with the test program having the wait time set to a predetermined value;[[,]] and

 detecting an optimal value of the wait time through a series of processes comprising:
 - measuring, after elapse of the wait time, the electrical characteristics of the semiconductor device on the basis of the response signal outputted from the semiconductor device; [[,and]]

making an OK/NG decision on the electrical characteristics of the semiconductor device on the basis of the measurement results, and[[,]]

if the decision is “NG”, remeasuring the electrical characteristics of the semiconductor device under a newly set wait time and, for each newly set wait time, performing the remeasuring operation on the electrical characteristics of the semiconductor device until the result of such a decision is “OK”, and

initiating the next measurement operation when the result of that decision is “OK”; and

a wait time adjusting flag memory section, connected to the measuring/deciding section, for setting a flag to an ON state when the result of the decision by the measuring/deciding section is “NG”; [[and]]

a wait time initializing/changing control section, connected to the measuring/deciding section and wait time adjusting flag memory section, for initializing the wait time included in the test program to an initially determined maximal value; [[and]]

for thereafter, gradually decrementing the wait time to a predetermined value, unless the result of the decision by the measuring/deciding section is “OK” and the wait time adjusting flag is set to an ON state;[[, and,]]

if the result of the decision is found to be “NG”, [[to]] for gradually incrementing the wait time toward an initially determined maximal value, until the result of the decision is “OK” after the wait time adjusting flag has been set to the ON state; [[,]]and terminating the wait time setting if the result of the decision is found to be “OK” and the wait time adjusting flag is set in the ON state.

4. (Original) The apparatus according to claim 3, further comprising a memory device, provided in the wait time initializing/changing control section, for storing data on the wait time set by the wait time initializing/changing control section.
5. (Currently amended) A semiconductor testing apparatus for supplying a test input signal to a semiconductor device as a testing target and receiving an output signal of the semiconductor device, comprising:
 - a measuring device for setting a test measuring condition including, an initial value of a wait time from a supply of the test input signal to the semiconductor device until the output signal of the semiconductor device becomes stable, and performing measurement on the semiconductor device under the set test measuring condition;
 - a measuring control apparatus, connected to the measuring device, for effecting [[such]] control [[as]] to allow the measuring device to perform processing in accordance with a predetermined measuring processing loop; and

for deciding a stable state of the output signal of the semiconductor
device, the measuring processing loop being a series of
processes comprising performing measurements by the
measuring device in a repeated way;_i[[,]]
storing the results of [[such]] the measurements,
counting the number of measurements, i, where i =
a positive integer of 1 or more, if it is
decided that the number of measurements, i,
equals a target number of measurements, j,
where j = a positive integer of 1 or
more;_i[[,]]
analyzing in realtime based on a statistical
procedure a data array corresponding to a j
number of measurement results obtained by
the number of measurements, j;_i[[,]]
deciding a stable state of the measuring data from
the result of analysis, if the result of the
decision is found to be “NG”,
repeating [[such]] measurement, [[such]] realtime
analysis on a new data array and [[such]]
stable state decision;_i[[,]] and

a wait time calculating device, connected to the measuring control apparatus, for,
if the result of the decision by the measuring control apparatus is found to
be “OK”,

allowing control to exit from the measuring processing loop and
control to be passed;[[,]] and

the wait time calculating device counting a real measurement time
corresponding to the number of measurements, i , and
automatically detecting the optimal wait time value.

6. (Currently Amended) The apparatus according to claim 5, wherein said measuring
control apparatus includes:

a measuring data storing device, connected to the measuring device, for storing
data on the result of the measurement by the measuring device;

a number of measurements counting device, connected to the measuring device,
for counting the number of measurements, i , measurements are repeatedly
made by the measuring device;

a number of measurements deciding device, connected to the number of
measurements counting device, for deciding whether the number of
measurements, i , in the number of measurements counting device has
reached a calculation target number of measurements, j ;

a calculating device, connected to the measuring data memory device and number
of measurements deciding device,

for calculating based on a statistical procedure a data array

corresponding to the j number of measurement results

obtained from the number of measurements, j ,

and analyzing the measured data in realtime; and

a stable state deciding device, connected to the calculation device, for deciding a stable state of the measured data from the analytical result of the calculation device,
 said measuring processing loop being a series of repeated processes for,
 if a result of stable state decision is found to be “NG”, effecting the measurements, realtime analysis on a new data array based on the statistical procedure and stable state decision,
 until the result of decision becomes “OK” or exceeds a maximal number of measurements.

7. (Currently Amended) The apparatus according to claim 5, wherein the wait time calculating device calculates, where a real measuring time for once is Δt , real measuring times for i times as corresponding to the number of measurements, i, by one real measuring time $\Delta t \times i$.
8. (Currently Amended) The apparatus according to claim 5 wherein the measuring control apparatus,
 store the result of calculation from the wait time calculating device in the wait time memory device, and
 effects ~~[[such]]~~ control ~~[[as]]~~ to automatically optimize the wait time of the test measuring condition based on the stored value.
9. (Currently Amended) A method for testing a semiconductor device comprising the steps of:
 preparing a semiconductor device as a testing target;
 setting a wait time to an initialized value;
 supplying a test signal to the semiconductor device and, upon receipt of a response signal outputted from the semiconductor device in accordance with the test signal after an elapse of the initialized wait time;~~[[,]]~~
 measuring the electrical characteristics of the semiconductor device;

effecting an OK/NG decision on the semiconductor device in accordance with the result of measurement₁[[;]]

if the result of the decision is found to be “NG”, effecting a

repeated setting of the wait time [[such]] that, until the result of the decision is “OK”, the wait time is sequentially incremented from the initialized value toward an initially determined maximal value; and

terminating the setting of the wait time if the result of the decision is “OK”.

10. (Currently Amended) A method for testing a semiconductor device comprising the steps of:

preparing a semiconductor device as a testing target;

setting a wait time to an initialized value;

supplying a test signal to the semiconductor device₁ and upon receipt of a response signal which is outputted from the semiconductor device in accordance with the test signal after an elapse of the initialized wait time, measuring the electrical characteristics of the semiconductor device;

effecting an OK/NG decision on the semiconductor device in accordance with a result of the decision₁[[;]]

if the result of the decision is found to be “NG”, effecting [[such]]

repeated wait time setting as to allow the wait time to be sequentially decremented from the initialized value toward an initially determined minimal value until the result of the decision becomes “OK”; and

terminating the wait time setting if the result of the decision becomes “OK”.

11. (Currently Amended) A method for testing a semiconductor device comprising the steps of:

- preparing a semiconductor device as a testing target;
- setting test measuring conditions including an initialized value of a wait time from a supply of a test input signal to the semiconductor device until an output signal of the semiconductor device becomes stable;
- performing repeated measurements on the semiconductor under the set different test measuring conditions;
- storing the respective results of the measurements and counting the number of measurements, i , where i represents a positive integer of 1 or more;
- deciding whether or not the number of measurements, i , has reached the calculation target number of measurements, j , where j represents a positive integer of 1 or more, $[[;]]$
 - when it is decided that the number of measurements, i , has reached the calculation target number of measurements, j , analyzing in realtime based on a statistical procedure a data array corresponding to a j number of measurement results thus far obtained from the number of measurements, $j_i[[,]]$ and
- deciding a state of the measured data from the result of analysis, and, if the result of decision is found to be “NG”, effecting measurement, realtime analysis on the data array based on the statistical procedure and stable-state decision in a repeated setting until the result of decision becomes “OK” or exceeds a maximal number of measurements; and $[[,]]$
- if the result of the decision is OK, calculating a real measuring time corresponding to the number of measurements, i , and detecting the optimal wait time value.